1 Identification

- **Product identifier**
  - **Trade name:** *E. coli HB101 Lyophilized*
  - **Catalog or product number:** 1660408, 1660408EDU
  - **Application of the substance / the mixture** Laboratory chemicals

- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:** Bio-Rad Laboratories, Life Science Group
    2000 Alfred Nobel Drive
    Hercules, California  94547
    (510)741-1000
  - **Information department:** lsg_techserv_us@bio-rad.com
  - **Emergency telephone number:**
    1(800)424-9300  Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
    510-741-1000

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - Acute Tox. 4 H302 Harmful if swallowed.

- **Label elements**
  - **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
  - **Hazard pictograms**
    - GHS07

- **Signal word** Warning

- **Hazard-determining components of labeling:**
  escherichia coli bacteria - freeze dried

- **Hazard statements**
  - H302 Harmful if swallowed.

- **Precautionary statements**
  - **P264** Wash thoroughly after handling.
  - **P270** Do not eat, drink or smoke when using this product.
  - **P301+P312** If swallowed: Call a poison center/doctor if you feel unwell.
  - **P330** Rinse mouth.
  - **P501** Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Emergency overview:**
  - **Routes of exposure:** Ingestion
  - **Other hazards**
  - **Results of PBT and vPvB assessment**
    - **PBT:** Not applicable.
    - **vPvB:** Not applicable.

(Contd. on page 2)
Trade name: E. coli HB101 Lyophilized

3 Composition/information on ingredients

- Chemical characterization: Substances
- CAS No. Description:
escherichia coli bacteria - freeze dried
- Additional information: For the wording of the listed risk phrases refer to section 15.

4 First-aid measures

- Description of first aid measures
- General information
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation Supply fresh air; consult doctor in case of complaints.
- After skin contact Generally the product does not irritate the skin.
- After eye contact Rinse opened eye for several minutes under running water.
- After swallowing
Immediately call a doctor.
Rinse mouth with water. Seek medical attention and appropriate follow-up.
- Information for doctor
- Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- Protective equipment: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures Wear protective clothing.
- Environmental precautions: No special measures required.
- Methods and material for containment and cleaning up: Dispose contaminated material as waste according to item 13.
- Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- Protective Action Criteria for Chemicals

  - PAC-1:
  Substance is not listed.

  - PAC-2:
  Substance is not listed.
Safety Data Sheet
acc. to OSHA HCS

Printing date 05/15/2018
Reviewed on 05/15/2018

Trade name: E. coli HB101 Lyophilized

7 Handling and storage

- Handling
  - Precautions for safe handling: No special precautions are necessary if used correctly.
  - Information about protection against explosions and fires: No special measures required.

- Conditions for safe storage, including any incompatibilities

- Storage
  - Requirements to be met by storerooms and receptacles: According to product specification
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions: None.
  - Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.

- Control parameters
  - Components with limit values that require monitoring at the workplace: Not required.

- Additional information: The lists that were valid during the creation were used as basis.

- Exposure controls

- Personal protective equipment
  - General protective and hygienic measures
    Keep away from foodstuffs, beverages and feed.
    Wash hands before breaks and at the end of work.
  - Protection of hands: Protective gloves.
  - Material of gloves: Synthetic gloves
  - Penetration time of glove material
    The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
  - Eye protection: Safety glasses

9 Physical and chemical properties

- Information on basic physical and chemical properties

- General Information
  - Appearance:
    - Form: Solid
    - Color: Light yellow
    - Odor: Odorless

- Odor threshold: Not determined.
  - pH-value: Not applicable.

- Change in condition
  - Melting point/Melting range: Undetermined

(Contd. on page 4)
### Safety Data Sheet

**Trade name:** E. coli HB101 Lyophilized

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling point/Boiling range:</td>
<td>Undetermined</td>
</tr>
<tr>
<td>Flash point:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gaseous):</td>
<td>Product is not flammable.</td>
</tr>
<tr>
<td>Decomposition temperature:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Auto igniting:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Danger of explosion:</td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td>Explosion limits:</td>
<td></td>
</tr>
<tr>
<td>Lower:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapor pressure:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Density:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Relative density:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapor density:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Evaporation rate:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Solubility in / Miscibility with water:</td>
<td>Fully miscible</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water):</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Viscosity:</td>
<td></td>
</tr>
<tr>
<td>Dynamic:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Kinematic:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Solids content:</td>
<td>100.0 %</td>
</tr>
<tr>
<td>Other information</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

### 10 Stability and reactivity

- **Reactivity**: No further relevant information available.
- **Chemical stability**
  - **Thermal decomposition / conditions to be avoided**: No decomposition if used according to specifications.
  - **Possibility of hazardous reactions**: No dangerous reactions known.
  - **Conditions to avoid**: No further relevant information available.
  - **Incompatible materials**: No further relevant information available.
  - **Hazardous decomposition products**: No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
  - **Acute toxicity**:
    - **Primary irritant effect**: No irritant effect.
    - **Sensitization**: No sensitizing effects known.
· Additional toxicological information:
  · Carcinogenic categories
    · IARC (International Agency for Research on Cancer)
      Substance is not listed.
    · NTP (National Toxicology Program)
      Substance is not listed.
    · OSHA-Ca (Occupational Safety & Health Administration)
      Substance is not listed.

12 Ecological information

· Toxicity
  · Aquatic toxicity: No further relevant information available.
  · Persistence and degradability No further relevant information available.
· Behavior in environmental systems:
  · Bioaccumulative potential No further relevant information available.
  · Mobility in soil No further relevant information available.
· Additional ecological information:
  · General notes: Generally not hazardous for water.
· Results of PBT and vPvB assessment
  · PBT: Not applicable.
  · vPvB: Not applicable.
· Other adverse effects No further relevant information available.

13 Disposal considerations

· Waste treatment methods
  · Recommendation
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
    Dispose of waste in accordance to applicable national, regional, or local regulations.
  · Uncleaned packagings:
    · Recommendation: Disposal must be made according to official regulations.
    · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

· UN-Number
  · DOT, ADR, ADN, IMDG, IATA Void
· UN proper shipping name
  · DOT, ADR, ADN, IMDG, IATA Void
· Transport hazard class(es)
  · DOT, ADR, ADN, IMDG, IATA Void
Trade name: E. coli HB101 Lyophilized

- Packing group
  - DOT, ADR, IMDG, IATA: Void

- Environmental hazards:
  - Marine pollutant: No

- Special precautions for user
  - Not applicable.

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
  - Not applicable.

- UN "Model Regulation": Void

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)
    - Section 302/304 (40CFR355.30 / 40CFR355.40):
      Substance not listed.
    - Section 313 (40CFR372.65):
      Substance is not listed.

- TSCA (Toxic Substances Control Act):
  Substance is not listed.

- California Proposition 65:
  Substance is not listed.

- Chemicals known to cause cancer:
  Substance is not listed.

- Developmental Toxicity
  Substance is not listed.

- Carcinogenic categories
  - EPA (Environmental Protection Agency)
    Substance is not listed.
  - TLV (Threshold Limit Value established by ACGIH)
    Substance is not listed.
  - MAK (German Maximum Workplace Concentration)
    Substance is not listed.
  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    Substance is not listed.

- National regulations
  - Water hazard class: Generally not hazardous for water.
  - Chemical safety assessment: A Chemical Safety Assessment has not been carried out.
16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Department issuing SDS: Environmental Health and Safety.
- Contact:
  Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000
  Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000
- Date of preparation / last revision 05/15/2018 / -

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service (division of the American Chemical Society)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 4: Acute toxicity – Category 4

* Data compared to the previous version altered.